REMARKS

Claims 6, 8, 9, 12-30 are in the application for further consideration. Claims 6 and 20 have been amended to recite that the copolymer by itself forms a bubble-free coating, as disclosed on p. 3, l. 11-13 and 24-25 and p. 9, l. 7-9. Claims 24 and 25 have been amended to recite the $-CF_2H$ end group for this MFA copolymer as disclosed on p. 8, l. 31-33. This copolymer with this end group has an intermediate level of stability. Claim 16 has been amended to recite the MFA that has $-CF_2H$ end groups as the overcoat on the rotolining of claim 6. It has been found that while this MFA cannot by itself form a bubble-free undercoat, it can form a bubble-free overcoat (p. 8, l. 33-38).

The starting point of the present invention as defined in claim 6 and 20 and the claims dependent thereon, is the rotolining use of the particles of tetrafluoroethylene(TFE)/-perfluoro(alkyl vinyl ether) (PAVE) copolymer that have been stabilized by fluorine treatment. This provides bubble-free rotolinings as disclosed on p. 3, l. 3 of the present specification, therein referring to Example 2 of EP 0 226 668. The rejection refers to Buckmaster, U.S. Patent 4,714,756 for disclosure that the fluorine stabilization reduces bubbling. No rotolining Example is reported in Buckmaster '756. EP'668 contains the rotolining Example 2 that discloses the bubble-free rotolining.

The problem with the fluorine treated particles of TFE/PAVE is that the rotolining obtained therefrom does not adhere to the mold surface. This failure in adherence is disclosed for TFE/PAVE copolymer in general in the literature, notably Scheirs, Modern Fluoropolymers, as disclosed on p. 1, l. 24-31, and is demonstrated in Example 1 in the present specification (p. 14, l. 24-27), wherein it is disclosed that the rotolining formed solely from the fluorine-stabilized TFE/PAVE copolymer is bubble-free but separates from the grit-blasted steel surface upon cooling of the mold and test panels therein.

The present invention as defined by claims 6 and 20 and the claims dependent thereon solves this problem by incorporating a small amount of metal powder that itself is not bubble promoting into the TFE/PAVE copolymer. This small amount is no greater than 2 wt% as recited in claims 6 and 20 and 0.3 to 1.2 wt% as recited in claims 19 and 22. Applicant's Examples show the effect of metal powder concentration on adhesion. Example 3 discloses the highest peel strength to occur at 0.8 wt% metal powder over a range of 0.5 to 1.1 wt%. Example 5 discloses decreased peel strength when increasing the metal powder content from 1 wt% to 2 wt%. Example 6 discloses a drastic decrease in peel strength when the metal powder content is increased to 3 wt%.

The adhesion required by the claims is a strong adhesion as indicated by the minimum peel strength of 25 lb/in recited in the claims

The claim requirement that the metal powder does not cause bubble formation distinguishes acceptable metal powder and unacceptable metal powder in the small amounts

recited in the claims. Al powder is an unacceptable metal powder because it causes bubbling. In this regard, Example 4 (p. 16, l. 6-10) discloses that the small amount of Al powder causes bubble formation in the rotolining.

Claims 24 and 25 are directed to a particular TFE/PAVE copolymer, namely tetrafluoroethylene/perfluoro(methyl vinyl ether)/perfluoro(propyl vinyl ether) copolymer which has been called MFA (p. 7, l. 20-23). As disclosed on p. 373 of Scheirs (Modern Fluoropolymers), MVE is perfluoromethylvinylether, this being a fluoromonomer copolymerized with TFE to form a melt-processable perfluoropolymer. As disclosed on p. 374, the TFE copolymer with MVE is called MFA to distinguish from conventional PFA. Pp. 373 (page number not visible) and 374 are attached. The present invention of claims 24 and 25 do not require that the MFA be fluorine stabilized. The small amounts of metal powder that adhere the fluorine-stabilized TFE/PAVE of claims 6 and 20 also adhere the MFA of claims 24 and 25 to the mold surface. The absence of fluorine stabilization of the MFA is indicated in these claims by recitation of the $-CF_2H$ end group for the copolymer. This end group is not an end group resulting from polymerization. Instead this end group is obtained by the well-known humid heat treatment of the copolymer as disclosed in U.S. Patent 3.085,083.

Claim 16 also recites the MFA copolymer having the $-CF_2H$ end group in the different context as the overcoat on a rotolining undercoat of fluorine treated TFE/PAVE copolymer.

With respect to the rejection of claims 6, 12, 14-18 and 19-27 based on Kazumi in view of Buckmaster, Kazumi discloses that that fluororesin generates bubbles during rotolining [0006] and that the addition of an inorganic powder or metal powder, mentioning glass, silicon, zinc, aluminum, copper etc suppresses this bubble formation [0007]. PFA is disclosed as a such a fluororesin and the amount of the fine powder is disclosed to be 0.1 to 30 wt%, about 5 wt% being preferred [0018]. Buckmaster is relied upon because of his disclosure of fluorine treatment of the PFA to reduce bubbling. The legal authority for combining Kazumi and Buckmaster is stated in the rejection as follows:

> "A rationale to support a claim would have been obvious is that all claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded nothing more than predictable results to one of ordinary skill in the art." Citing KSR International v. Teleflex, Inc 82 USPQ2d, 1385, 1395 (p. 5) and three earlier Supreme Court cases.

This is a both (I) a n incorrect statement of KSR and (II) an incorrect application of KSR.

With respect to (I), the incorrect statement is the "could have combined". In this regard, the Court in KSR states the following:

> "As is clear from cases such as *Adams*, a patent composed of several elements is not proven obvious merely by demonstrating that each of its elements was, independently known in the prior art. Although common sense directs one to look with care at a patent application that claims as innovation the combination of two know devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed invention does." (p. 1396)

It is not that enough that the different elements could be combined, there must be a reason for doing so.

While ascribing a legal standard from KSR that is free of motivation, the rejection attempts to provide motivation for the combining of Buckmaster into Kazumi, by referring to the reduction in bubbling for the stabilized PFA and the convenience of is powder form. Neither of these aspects are motivators to one skilled in the art to practice the prior art combination asserted.

According to Kazumi, his PFA is made bubble free by the incorporation of the fine inorganic or metal powder into the PFA. One skilled in the art seeing that Kazumi has already solved the bubble problem is not attracted to Buckmaster for solution of the same problem. If one skilled in the art were attracted to Buckmaster because of his solution to the bubble problem, then the inorganic or metal fine powder of Kazumi would be unnecessary. One skilled in the art is not prompted by Buckmaster to combine both the bubble free PFA with the bubble suppressing inorganic or metal fine powder of Kazumi.

With respect to the powder form of the Buckmaster stabilized PFA, one skilled in the art knows from Kazumi that his bubbling PFA is already in a powder form so that the PFA and the fine powder can be mixed together [0018] and resultant mixture can form a lining by rotation of the chemical container [0015-0017]. One skilled in the art is not motivated to replace the powder form of Kazumi with the powder form of Buckmaster. Moreover, the powder form of Buckmaster is independent of the fluorine stabilization of the PFA in Buckmaster. In Buckmaster, the PFA is formed into the powder and then the powder, called granules, is subjected to fluorine treatment (col. 2, l. 26-38). If the powder form of the Buckmaster PFA were considered attractive to Kazumi, there would be no reason to carry out the fluorine treatment to eliminate bubbling, because the Kazumi fine powder already provide a bubble-free PFA lining.

The KSR treatment of hindsight and the PTO Board of Patent Appeals and Interferences reaction to this treatment is relevant to the asserted motivations for combining Buckmaster into Kazumi. In KSR, the Court stated as follows:

> "The Court of Appeals, finally drew the wrong conclusion from the risk of courts and patent examiners falling prey to hindsight bias. A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautions of arguments reliant upon ex post reasoning…….Rigid preventive rules that deny factfinders recourse to common sense, however, are neither necessary under our case law nor inconsistent with it." (p. 1397)

In both Ex parte Green, Appeal no. 2007-1271 and Ex parte Rinkevich and Garrison, Appeal 2007-1317, the Board of Patent Appeals and Interferences citing KSR concluded that the combining of references to solve a problem already solved by one of the references failed the common sense test, i.e. was not an obvious combination to one skilled in the art. That conclusion also applies to the combination of Buckmaster into Kazumi.

With respect to (II), the combination of fluorine-stabilized particles and a small amount of non-bubble promoting metal powder does not yield a result that is predictable from Kazumi and Buckmaster. The Buckmaster TFE/PAVE copolymer is already bubble–free in rotolining. It is not predictable from the disclosure of Kazumi that the inorganic or metal powders suppress bubbles coming from the TFE/PAVE bubble-forming copolymer adheres the copolymer to the mold surface. Nor is it inherent result from the scope of powders and the broad compositional range disclosed in Kazumi. Applicant's specification, as discussed above reveals that only small amounts off certain metal powders provide adhesion characterized by a peel strength of at least 25 lb/in. and that adhesion diminishes as the metal powder content increases from the small amount. For inherency, the missing descriptive subject matter, adhesion in Kazumi must necessarily be present in the reference and is not established by probabilities or possibilities or that a certain thing may result from a given set of circumstances, Continental Can Co. v. Monsanto Co. 20 USPQ2d 1746, 1749 (Fed. Cir. 1991) and In re Robertson, 49 USPQ2d 1949, 1950-1951 (Fed. Cir. 1999). Moreover, inherency is an improper foundation for an obviousness rejection. As stated in In re Spormann and Heinke, 150 USPQ 449 (CCPA 1966):

> "the inherency of an advantage and its obviousness are entirely different questions. That which may be inherent is not necessarily known. "Obviousness cannot be predicated on what is unknown."" (p. 452)

Adhesion of the rotolining is not an inherent result of the practice of the breadth of Kazumi, both with respect to the identity of the powder and its amount, and the disclosure of the bubble suppression function of the powder on the bubbling PFA copolymer of Kazumi forms no basis for concluding that adhesion is a predictable result.

The rejection mistakenly refers to Applicant's small amount of certain metal powder additive to the fluorine stabilized TFE/PAVE copolymer as optimizing arising from routine experimentation. It is not optimizing to find a different effect from bubble-suppression disclosed in Kazumi. It is not optimizing to find that the bubble suppression function of the Kazumi fine powder is unnecessary, but that small amounts of certain metal powders perform the different function of adhering the fluorine-stabilized TFE/PAVE copolymer to the mold surface.

The rejection refers to Kazumi's desire to create a lining that adheres to the container surface [0003]. This is not an expression of desire. It is an expression of the defect in inserting a bag into the container to serve as a lining therefore [0002]. A bag that is inflatable to form a lining within a vessel is also inherently deflatable to result in lining separation. It is a matter of fact that PFA, whether or not fluorine stabilized, does not adhere to the mold surface as discussed above. Moreover, the problem to be solved in Kazumi is disclosed solely in terms of suppressing bubbles in the fluororesin lining [0006-0007].

Dependent claims 19-23 and 26 and 27 are unobvious and therefore patentable on the same basis as their respective independent claims 6 and 20.

Claim 16 is additionally unobvious over Kazumi/Buckmaster by virtue of the combination of linings obtained by the process recited therein, i.e. a fluorine-stabilized TFE/PAVE undercoat and an unstabilized overcoat of MFA copolymer. Buckmaster is cited as suggesting MFA by virtue of disclosing perfluoro(methyl vinyl ether) and perfluoro(propyl vinyl ether) notwithstanding the fact that MFA has been distinguished from conventional PFA as disclosed in Schiers discussed above. Buckmaster fluorine treats his copolymers which means that if MFA were to be suggested by Buckmaster it would not have the $-CF_2H$ end group required by Claim 16.

Claims 24 and 25 are unobvious and therefore patentable over the combination of Kazumi and Buckmaster on the basis that the MFA copolymer of these claims is not disclosed in Kazumi, and is not fluorine treated as evidenced by the presence of the $-CF_2H$ end group as now recited in these claims. One skilled in the art does not foresee from Kazumi the MFA composition (claim 24) or the rotolining process (claim 25) to provide an adherent MFA rotolining, characterized in claim 25 by a peel strength of at least 25 lb/in. Buckmaster neither discloses MFA nor the $-CF_2H$ end group.

With respect to the rejection of claims 8-9, 13, and 28-30 based on Kazumi/Buckmaster further in the light of Saito et al. (Saito), all these claims depend directly

or indirectly from independent claim 6 and are unobvious and therefore patentable on the same basis as claim 6. Saito does not cure the deficiencies in the Kazumi/Buckmaster combination discussed above.

Saito is cited against claims 8-9 and 28-30 as disclosing rotolining with PFA to create a thick film of 5 mm that is free of bubbles. Saito prevents bubbling by incorporating 0.05 to 5 wt% of PPS (polyphenylene sulfide) into the PFA (col. 4, l. 3-7). Kazumi suppresses bubbling by incorporation of inorganic or metal powder into the PFA. Buckmaster suppresses bubbling by fluorine treatment of the PFA. It is not obvious to one skilled in the art to combine three bubble-free teachings to obtain the same bubble-free result.

Saito also adds filler to the PFA to reduce its shrinkage to not more than 5.1% (col. 4, l. 44-47) in order to match the shrinkage of the lining with the shrinkage of the substrate on which the lining is formed (col. 4, l. 8-15). This requires a large amount of filler as indicated in Tables 1 and 2, wherein the amount of filler ranges from 10 to 50 wt%.. The achievement of a thick, bubble-free lining by using PPS additive and a large amount of shrinkage reducing filler offers no suggestion to Kazumi/Buckmaster to arrive at the invention of claims 8-9 and 28-30. The commonality of thick film asserted in the rejection to arise from the disclosure of thick film in Saito, arises from the specifics of the Saito rotolining composition. These specifics have no application to Kazumi's teaching of bubble suppression and the disclosure of only a 0.5 to 1 mm thick overcoat, being smaller than the 2 mm thick undercoat thereby avoiding bubbling in the overcoat [0019. 0021, and 0022].

Saito is cited against claim 13 by virtue of the Saito disclosure of tin additive to PFA to prevent bubbling. The rejection asserts in effect that claim 13 represents a selection of a known material based on its suitability for its intended purpose. Claim 13 recites that the composition of its parent claim 6 achieves a peel strength of at least 25 lb/in. There is no hint in Saito that this is the intended purpose for or result from the tin additive. There is no hint in Saito that tin in the proper amount has the property of causing fluorine-stabilized TFE/PAVE copolymer to provide such strong adhesion to the rotolining mold.

The rejection cites Ex parte Obiaya in support of the assertion that adhesion promotion naturally flows from the combination of the prior art asserted. This is a misapplication of Obiaya. In the fact situation in Obiaya, the labyrinth heater is incorporated into a sensor system to perform its heater function, i.e. there is no change, e.g. selection of conditions, in the system itself. The result of adhesion being caused by the tin additive does not flow naturally from the combination of Saito, Kazumi, and Buckmaster, because of the wide composition range disclosed in Kazumi and unnatural relationship between Saito and Buckmaster. The use of tin stabilizer in Buckmaster is superfluous because Buckmaster has already solved the bubbling problem by fluorine treatment of the TFE/PAVE copolymer.

The present invention provides a novel composition to produce a novel result, one that is not predictable from the prior art. The claims define this composition in "consisting essentially of" terms and require a strong adhesion result. Thus, Applicant has tried to present claims that are well distinguishable from the prior art. If the Examiner has additional proposal, Applicant would be pleased to be advised thereof.

In view of the foregoing, allowance of the above-referenced application is respectfully requested.

A petition for one-month extension of time and payment of the required fee is filed herewith.

Respectfully submitted,

/Edwin Tocker/

Edwin Tocker
ATTORNEY FOR APPLICANT
Registration No.: 20,341
Telephone: (302) 892-7903
Facsimile: (302) 992-3257

Dated: July 9, 2009